

S1 Table. (A) Apparent hit rate and estimated true hit rate in the estimation of surgical workload in HALDNx as calculated by different statistical methods

	NQDR	NLDR	3-NNR	5-NNR	FF	RBF	Logistic	Linear	Average
Apparent Hit Rate	92.2%	97.4%	92.1%	88.9%	99.4%	95.3%	92.4%	86.6%	93.0 ± 4.2%
Cross Validation	86.1%	94.8%	87.6%	88.8%	89.6%	91.9%	88.9%	86.6%	89.3 ± 2.9%
Simple Bootstrap	83.8%	94.4%	84.6%	79.6%	96.0%	92.5%	90.4%	84.8%	88.3 ± 5.9%
Jack Knife	86.3%	94.9%	87.7%	88.8%	87.6%	91.5%	89.4%	84.0%	88.8 ± 3.3%
Randomized Bootstrap	89.9%	96.9%	88.2%	86.3%	95.7%	91.5%	89.8%	85.1%	90.4 ± 4.2%
.632 Estimator	88.6%	95.6%	89.4%	88.1%	92.6%	88.2%	90.9%	88.2%	90.2 ± 2.7%
Average Hit Rate	86.9 ± 2.4%	95.3 ± 1.0%	87.5 ± 1.8%	86.3 ± 3.9%	92.3 ± 3.8%	91.1 ± 1.8%	89.9 ± 0.8%	85.7 ± 1.7%	

Results in this table were calculated using a different cohort from the one in this article. Apparent hit rate is the discrimination rate of easy cases in HALDNx for the training data using different discriminators constructed using the training data itself.

Other hit rates than this were estimated for future data by several estimation methods. Details of this kind of comparison of discriminators and estimators are found in Reference 30 (Efron B, J Am Stat Assoc. 1983;78: 316-331). Average hit rates are shown as the mean \pm standard deviation.

HALDNx: hand-assisted laparoscopic donor nephrectomy; NQDR: normal-based quadratic discriminant rule; NLDR: normal-based linear discriminant rule; 3-NNR: 3-nearest neighborhood rule; 5-NNR: 5-nearest neighborhood rule; FF: feedforward neural network; RBF: radial basis function neural network; Logistic: logistic regression; Linear: linear regression; Cross Validation: cross-validation method; Simple Bootstrap: simple randomized bootstrap method; Jack Knife: Jack Knife estimate of bias; .632 Estimator: .632(ϵ - err).

S1 Table. (B) Comparison of predictive factors and discrimination index and complications between top 9 cases of longest operative times and top 11 cases of shortest operative times

Group	Operative Time	discrimination index	Bw	Ht	Male	Age	numberRA	maxthickMPF	medthickMPF	medthickLPF	areaPNF	ctvPNF	areaSCF	thickSCF	TP	Alb	TG	TC	Clavien Grading
Operative Time Long	360	1.925591162	81	168	1	61	1	22.61	23.98	36.78	55.1903	-102.95	105.17	15.04	7.5	4.5	82	208	0
	330	0.296199345	83	168	1	59	2	17.38	15.52	24.93	33.2769	-103.02	143.557	21.69	7.1	4	162	255	1
	300	2.052337213	74	173	1	69	4	13.62	11.3	20.9	34.08	-99.4	97.31	14.41	6.7	3.6	76	122	0
	300	0.2143457	88	174	1	57	1	17.76	17.59	27.01	33.6881	-94.18	130.14	26.68	7	4.4	460	203	0
	270	2.136934922	70	163	1	57	3	17.58	15.5	27.1	39.93	-96.34	78.36	7.91	6.8	4	179	203	0
	270	1.783212176	80	168	1	52	1	19.94	18.19	30.46	43.792	-90.05	110.686	14.12	7.7	4.6	154	186	0
	250	-2.433512102	59	161	0	68	1	12.89	10.7	15.3	26.48	-94.42	97.06	22.34	7.5	4.4	264	256	0
	240	-0.824154735	72	165	1	62	1	10.6	4.1	19	24.29	-88.87	71.84	11.16	6.8	3.8	134	162	0
	240	0.593979258	99	167	1	36	2	13.48	11.32	30.66	21.5158	-94.86	254.962	42.82	6.8	4.3	211	237	1
Operative Time Short	100	-4.634559686	50	159	0	67	1	6.78	4.8	6.3	5.85	-79.71	69.17	14.97	7	4.6	161	211	0
	100	-5.313314378	50	170	0	48	1	3.11	1.2	3.2	1.51	-70.36	55.68	13.04	6.9	4.2	133	228	0
	100	-5.913013403	44	142	0	66	1	4.04	1.9	6.6	3.32	-85.93	45.4	9.32	6.9	4.3	60	208	0
	100	-4.384847564	58	168	1	42	1	3.98	2.6	3.2	1.88	-55.18	21.19	7.45	6.5	4.2	133	230	0
	100	-4.214745928	55	164	0	54	1	7.15	5.04	12.19	5.3112	-67.65	95.3306	19.34	7.1	4.2	96	291	0
	100	-3.890362825	43	155	0	52	1	6.61	6.94	8.68	4.5452	-64.9033	48.6491	8.78	6.6	3.9	42	172	0
	100	-3.732943326	54	160	0	46	1	5.15	4	8.3	9.29	-80.84	83.46	23.34	6.6	3.9	65	161	0
	100	-4.507647581	58	160	1	72	1	5.13	4.27	19.26	13.126	-86.14	59.2863	10.27	7	4	113	150	0
	100	-3.668595336	47	145	0	75	1	7.5	6.34	13.83	14.6561	-85.59	138.66	22.27	7.5	4.2	165	190	0
	90	-5.078642484	50	147	0	54	1	4.88	4.5	10.92	8.5828	-77.29	120.537	25.66	7.6	4.3	120	257	0
	90	-4.885573951	50	152	0	54	1	2	2.34	5.61	2.99	-64.545	96.4404	24.93	6.5	4.5	89	219	0
p-value	0.000169	0.000169	0.0007	0.008	0.005	0.595	0.026	0.000169	0.00095	0.000308	0.000169	0.000169	0.0205	0.518	0.362	0.909	0.0304	0.704	0.189

This table is a comparison of predictive values, discrimination index and surgical complications between 9 cases with heaviest workload and 11 cases with least workload ones in terms of operative time. Cases whose operative time was 240 min or more consist long operative time group and those whose time was 100 min or less consist short operative time group. numberRA = number of renal arteries of the graft, maxthickMPF = maximum thickness of medial perinephric fat, medthickMPF = median thickness of medial perinephric fat, medthickLPF = median thickness of lateral perinephric fat, areaPNF = area of perinephric fat, ctvPNF = CT value of perinephric fat density, thickSCF = thickness of subcutaneous abdominal fat at the midline, areaSCF = area of subcutaneous fat.

S1 Table. (C) Surgical complications in 128 HALDNx according to modified Clavien classification system

Male	Age	Bw	Ht	Alb	TP	TG	TC	numberRA	maxthickMPF	medthickMPF	medthickLPF	areaPNF	ctvPNF	thickSCF	areaSCF	Operative Time	discrimination index	ClavienGrading	Complication
0	52	50	153	3.7	7.1	105	196	1	8.14	4.7	11.3	11.18	-96.46	100.84	100.84	130	-3.798192225	Grade 1	slow bowel syndrome
0	42	76	173	4.7	7.9	144	226	2	5.76	7.32	13.71	11.8398	-87.25	148.699	148.699	150	-4.295677242	Grade 1	shoulder pain
1	36	99	167	4.3	6.8	211	237	2	13.48	11.32	30.66	21.5158	-94.86	254.962	254.962	240	0.593979258	Grade 1	frank pain
1	59	83	168	4	7.1	162	255	2	17.38	15.52	24.93	33.2769	-103.02	143.557	143.557	330	0.296199345	Grade 1	frank pain
0	64	56	155	4.1	6.7	220	257	1	4.42	4.2	6.7	5.91	-82.77	96.63	96.63	150	-5.524244295	Grade 1	leg pain
1	70	74	156	4	6.6	119	189	2	19.29	19.77	21	36.5941	-92.56	101.389	101.389	210	1.41825826	Grade 1	leg pain
0	67	61	159	4	7.2	386	239	1	5.38	9.54	15.1	18.4258	-92.39	120.672	120.672	150	-5.510564535	Grade 2a	surgical site infction
1	69	64	160	4.1	6.7	215	195	2	7.76	7.9	25.31	34.6464	-102.45	66.8613	66.8613	180	-2.182934743	Grade 2a	surgical site infction
1	69	59	163	4.1	7.2	50	189	1	8.22	6.68	15.38	16.2804	-88.01	58.1747	58.1747	120	-3.909899491	Grade 2a	surgical site infction
0	71	61	151	4.7	8.6	98	201	1	11.51	9.75	20.44	28.7491	-100.05	132.3	132.3	150	-2.90588376	Grade 2a	surgical site infction
0	63	63	157	4.2	7.4	76	179	1	6.99	5.9	8.5	10.9492	-85.24	166.504	166.504	180	-3.531972152	Grade 2b	hernia
0	49	56	160	4.4	7.3	68	198	1	6.94	2.4	3	1.42	-70.26	95.45	95.45	130	-3.572207112	Grade 2b	pneumothorax

This table shows all the complications developed in 128 HALDNx with predictive factors, discrimination index and modified Clavien grading.

numberRA = number of renal arteries of the graft, maxthickMPF = maximum thickness of medial perinephric fat, medthickMPF = median thickness of medial perinephric fat, medthickLPF = median thickness of lateral perinephric fat, areaPNF = area of perinephric fat, ctvPNF = CT value of perinephric fat density, thickSCF = thickness of subcutaneous abdominal fat at the midline, areaSCF = area of subcutaneous fat.